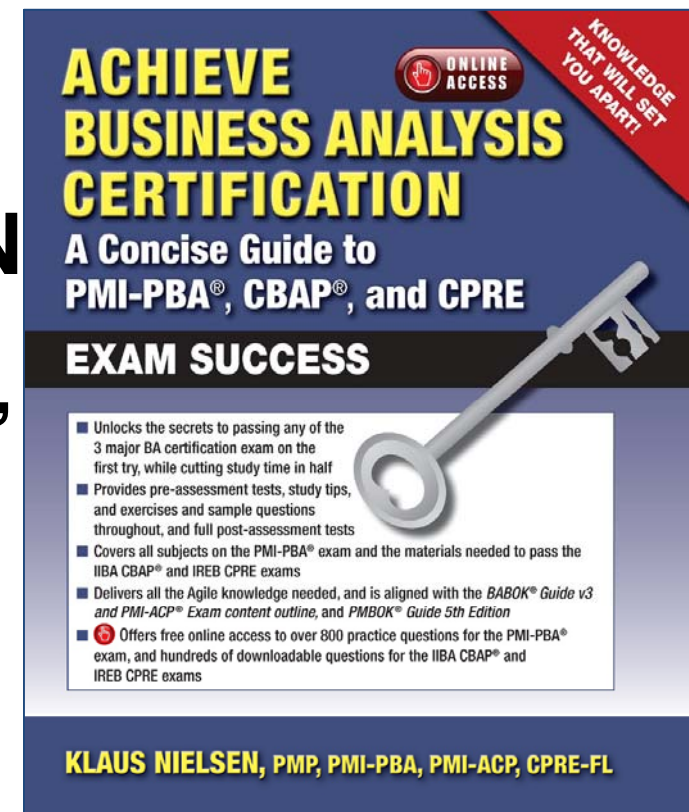# Chapter 7: Analyst Domain

ACHIEVE BUSINESS

ANALYSIS CERTIFICATION

A Concise Guide to PMI-PBA®,

CBAP®, and CPRE

By Klaus Nielsen

Terms to Know

- Types of elicitation techniques

- Kano model

- Requirement sources

- Group decision-making techniques

- Inspections

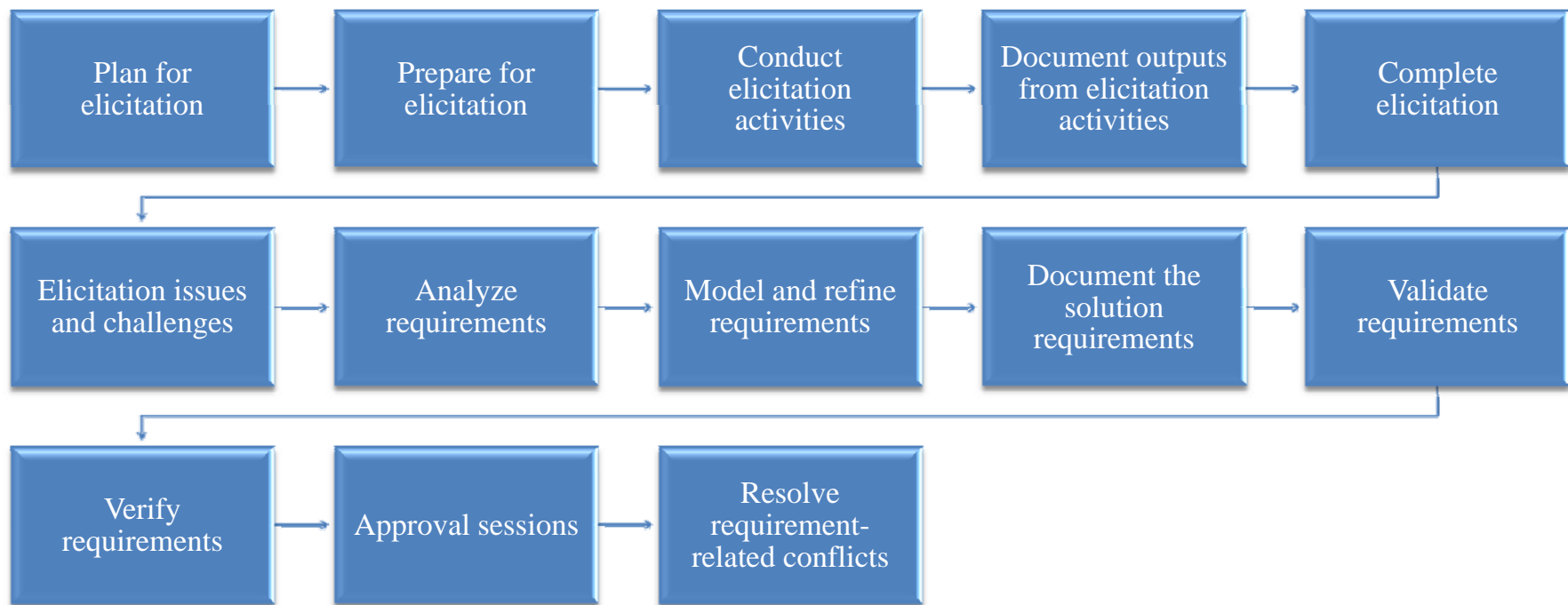- Requirement baseline

- Work breakdown structure

- Techniques for prioritization

- Requirements

- Requirements documentation using a natural language

- Requirements documentation using a model-based

- Quality

Requirement Elicitation and Analysis

The Steps

Plan for elicitation	Prepare for elicitation	Conduct elicitation activities	Document outputs from elicitation activities	Complete elicitation
Elicitation issues and challenges	Analyze requirements	Model and refine requirements	Document the solution requirements	Validate requirements
Verify requirements	Approval sessions	Resolve requirement-related conflicts		

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Requirement Elicitation and Analysis

Emphasis on the requirement management activities

Discover, gather and collect requirements

Requirements are elicited, analyzed, developed, modeled, and managed in all possible forms

Close collaboration with the stakeholders

Importance of Information Elicitation

Support executive decision making

Apply influence successfully

Assist in negotiation and mediation

Resolve conflicts

Define problems

Types and Sources of Requirements

Stakeholders

- People or organizations that directly or indirectly influence the requirements of the system

Documents

- Often containing important information that can be a source for attaining requirements

Systems in operation

- Can be legacy, predecessor, or competing systems. Providing the stakeholders with a chance to try the system out, will help them gain an impression of the current system and they can then request extensions or changes based on their impressions.

Factors Influencing the Choice of Elicitation

Techniques

- Distinction between conscious, unconscious, and subconscious requirements
- Time and budget constraints, and stakeholder availability
- Business analyst's experience with a particular elicitation technique
- Chances and risks of the project

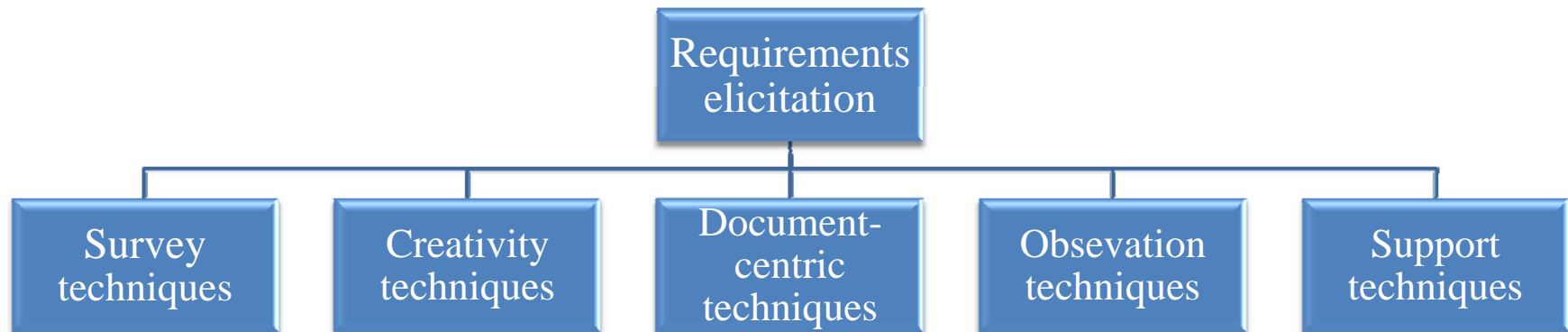# Factors Influencing the Choice of Elicitation

Risk Factors

Selection of a suitable elicitation technique is dependent on the risk factors involved in a project.

These factors can result from the following influences:

- Human influences
- Organizational influences
- Operational influences of the content

Requirement Elicitation Techniques

Requirement Elicitation Techniques

Survey Techniques	Creativity Techniques	Document-Centric techniques	Obsevation Techniques	Support Techniques
• Structured interviews • Unstructured intervews • Synchronous interviews • Asynchronous interviews • Surveys	•Individual brainstorming sessions •Open brainstorming during a workshop •Structured brainstorming using WBS for a structured approach •Silent brainstorming using yellow stickers •Brainstorming paradox •Change of perspective •Analogy techniques	•System archaeology •Document review •Perspective based reading •Reuse	•Field observation •Apprenticing •Passive observations •Active observations •Participatory observations •Simultions	•Mind mapping •Workshops •CRC Cards •Audio/Video recordings •Personas •Use Case modeling •Wikis •Blogs •Discussion forums •Requirements prototypes •Reverse engineering •Requirement reuse

Eliticitation Techniques Exercise

- Write one eliticitation technique on the board
- Highlight a few advantages and disadvanges
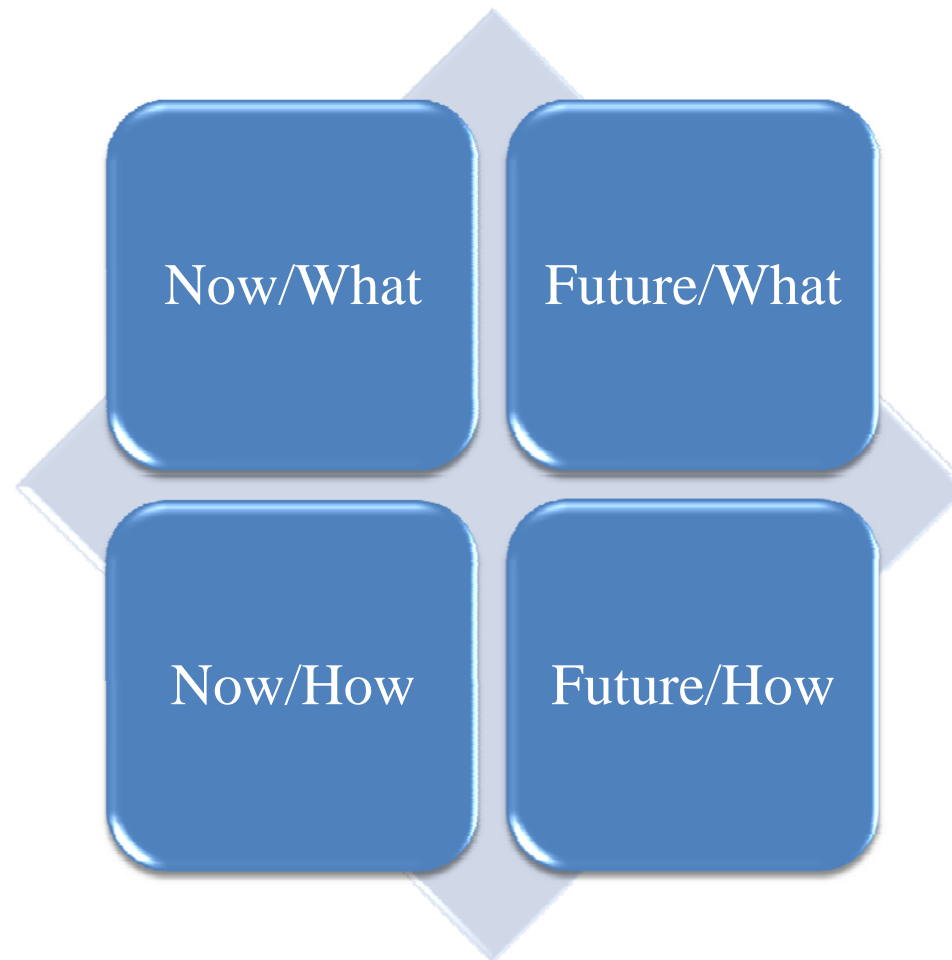- Continue until several or all of the techniques have been discussed.

Exercise 7.5: High or Low Fidelity Prototypes?

High or Low fidelity prototype	Techniques for building requirements prototypes
	Colored marker pen drawings on a flipchart
	Screen images drawn
	Hypertext of screen views is linked in order to button click to navigate
	Circles and rectangles to form an easily reconfigured mock-up screen
	Cardboard mock-up
	A scene acted by people
	A video of an acted screen
	Software implementation
	Old version or a competitive product

Requirement Elicitation: Brown Cow Model

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Categorizing Requirements: Kano Model

Elaborate Requirements

Elaborating requirements is a matter of examining, going into details, and adding knowledge into the elicited requirements.

Requirements analysis allows the business analyst to:

- Elaborate on basic requirements established during earlier requirement engineering tasks

- Build models that depict user scenarios; functional activities; problem classes and their relationships; system and class behavior; and the flow of data as it is transformed

- Identify essential real-world information

- Remove redundant, unimportant details

- Clarify unclear natural language statements

- Fill remaining gaps in discussions

- Detect and resolve conflicts between requirements

- Discover the bounds of the software

- Define interaction with the environment

Requirements Defined

PMI defines requirements as, *"a condition or capability that is required to be present in a product, service, or result to satisfy a contract or other formally imposed specification"*.

PMI uses the following requirement types:

- **Business requirement:** high-level needs of the organization
- **Stakeholder requirement:** needs of the stakeholders
- **Solution requirement:** functional and non-functional requirements
- **Functional requirement:** behavior of the product
- **Non-functional requirement:** environmental condition or quality required
- **Transition requirement:** temporary capabilities such as training or data conversion

Requirements Classification

Table 7.15   Types of requirements

Types of requirements	Description	Example
Functional requirement	A requirement concerning a result of behavior that will be provided by a function of the system.	The user shall be able to search either all of the initial set of databases or select a subset from it.
Quality requirement (non-functional)	Also called a non-functional requirement.	The user interface for the system shall be implemented as simple HTML without frames or Java applets.
Constraints	A requirement that limits the solution space beyond what is necessary for meeting the given functional and quality requirements. Also called domain requirements.	Because of copyright restrictions, some documents must be deleted immediately on arrival.

Requirement Attributes

CARA'S SOUPS stands for the following vital requirement attributes—the acronym makes them easier to memorize:

- **C**omplexity
- **A**bsolute reference
- **R**isks
- **A**uthor
- **S**ource

- **S**tability
- **O**wnership
- **U**rgency
- **P**riority
- **S**tatus

Conceptual Modeling and Requirement Analysis

- Business rules modeling (decision tree, business rule catalog, and decision table)

- Data modeling (ER diagram, data flow diagram, data dictionary, state table, and state diagram)

- Functional decomposition

- Interface modeling (wireframes, report table, and user interface flow)

- Organization modeling

- Process modeling (use case and user story)

- Scope modeling (context diagram and feature model)

Validate Requirements

Perspective-based readings are a kind of validation technique that adopts different perspectives to check the requirements, and are typically applied in conjunction with other review techniques.

The validation perspectives would often include:

- User/customer perspective

- Software architect perspective

- Tester perspective

Validation through Prototypes

Evolutionary prototype

- Developed with the goal to be developed further and improved in later steps
- Effort to create is much higher

Throwaway prototype

- Not maintained once they have been used

Checklists for Validation

- Before using a checklist, every single question or statement must be defined

- While using a checklist, always look for opportunities to improve the checklist for future use

- Ambiguous questions must be marked and revised

- Outdated or questions that are no longer valid should be removed

- The checklist serves as a guideline for the auditor and as a measure to approach validation in a structured manner

- Application of checklists for requirements validation successfully depends on the manageability and complexity of the checklist

Group Decision-Making Techniques

Unanimity	Majority
Plurality	Dictatorship

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Allocate Requirements

- Product analysis
- Product breakdown
- System analysis
- Requirement analysis
- System enginering
- Value engineering
- Value analysis
- Alternative generation (brainstorming, lateral thinking, analysis of alternatives)

Prioritization of Requirements

- Ranking
- Top-ten/100-dollar
- Single-criterion classification
- Prioritizing user stories
- Multivoting (3 rounds of voting)
- MoSCoW prioritization
- Kano classification
- Karl Wiegers relative weighting/prioritization matrix
- Strategy grids
- Analytical hierarchy process (AHP)
- Cost-value analysis
- Quality function deployment (the house of quality)

Elicitation Issues and Challenges

Conflicting viewpoints

Conflicting information

Unstated or assumed information

Stakeholders fails to cooperate

Inability to schedule time for interviews

Inability by the stakeholders to express what they do or what they would like to do

Inability by the stakeholders to focus on the current solution

Requirement Baseline

Table 7.28   Requirement baseline

	Verification	Verification
1. Identified Need	**2. Requirement Baseline**	**3. System, Product, or Service**
Validation	Validation	Validation

The Work Breakdown Structure (WBS)

The WBS is defined as *a hierarchical decomposition of the total scope of work to be carried out by the project team to accomplish the project objectives and create the required deliverables*

Table 7.28 Create WBS

Input	Tools and Techniques	Output
• Scope and management plan • Project scope statement • Requirement document • Enterprise environmental factors • Organizational process assets	• Decomposition • Expert judgment	• Scope baseline • Project documents updates

Approval Sessions

Signoff on the requirement baseline using decision-making techniques should be obtained in order to facilitate stakeholder consensus and achieve stakeholder approval.
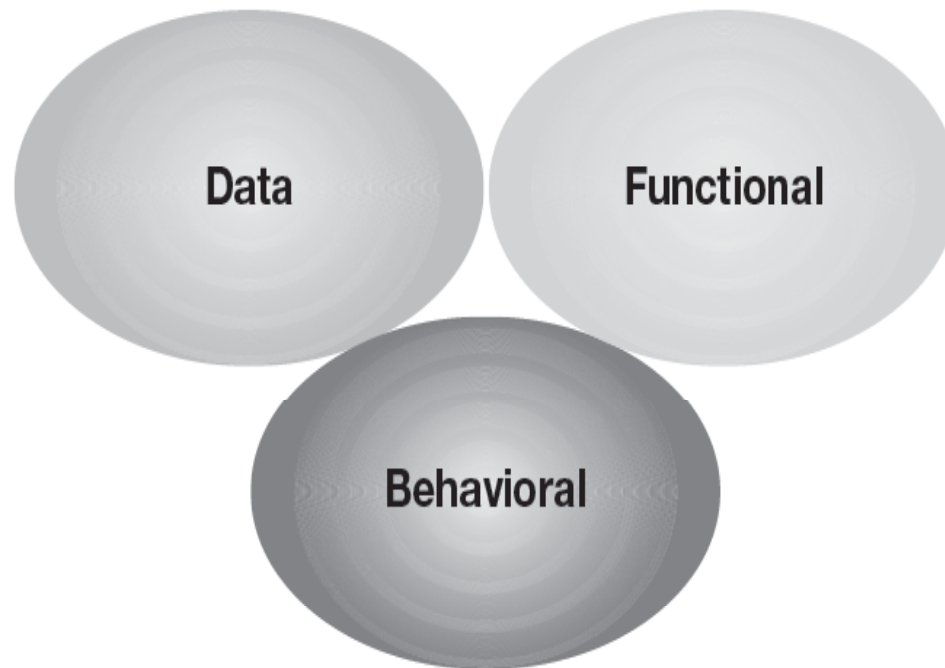
Document Requirements

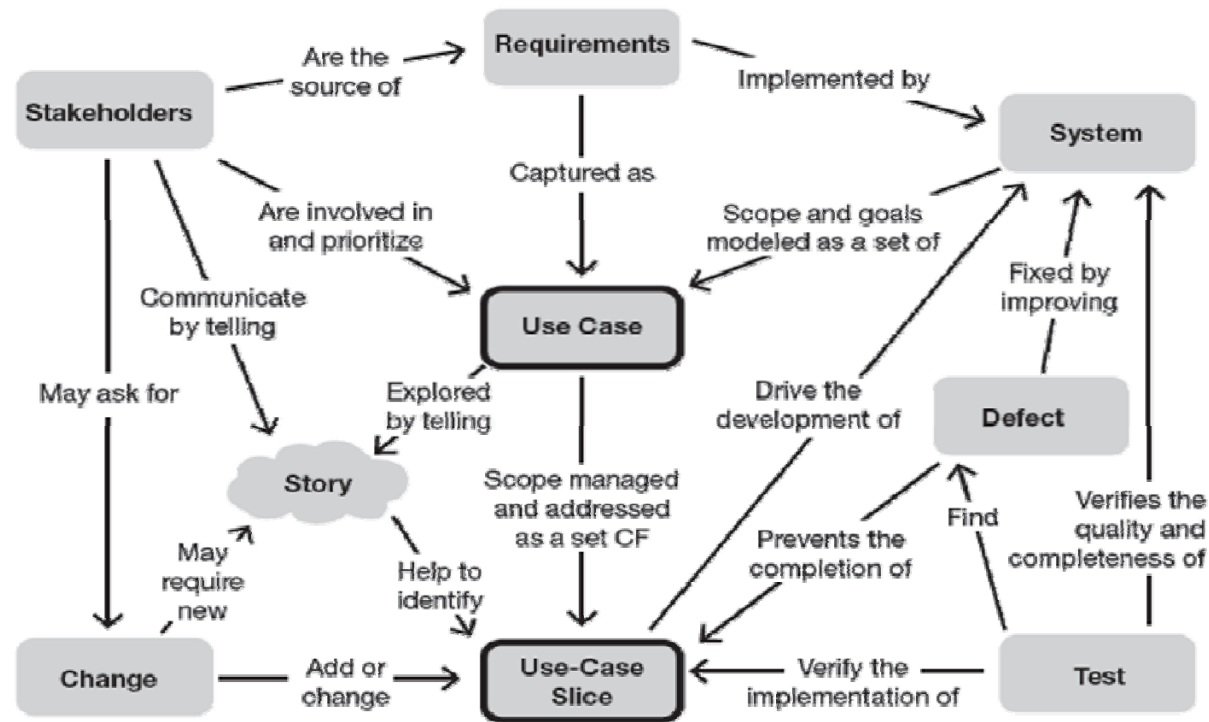**Figure 7.10**   The three perspectives on requirements

Use Cases

Figure 7.11 Use case concept map from Ivarson's *Use Case 2.0*

Verify the Requirements

Validation is defined as *the assurance that a product, service, or system meets the need of the customer and other identified stakeholders.* It often involves acceptance and suitability with external customers.

Verification is defined as *the evaluation of whether or not a product, service, or system complies with the regulation, requirements specification, or imposed condition.* It is often an internal process. There is overlap between system verification and requirements verification.

Specify Requirements: Expected Results

The expected results from the specify requirements process are completed by elaborating and specifying detailed metrics and acceptance criteria using measurement tools and techniques that are used in evaluating whether the solution meets the requirements.

Knowledge and Skills*

- Analytic tools and techniques
- Business rule analysis tools and techniques
- Data analysis tools and techniques
- Decision-making tools and techniques
- Elicitation tools and techniques
- Facilitation tools and techniques
- Interface analysis
- Negotiation tools and techniques
- Prioritization tools and techniques
- Process analysis tools and techniques
- Root cause analysis

Discussed in detail in Chapter 10

Exercises

Complete and discuss the posttest at the end of Chapter 7

Complete Exercise 7.13–matching keywords and definitions

Questions?

Thank You

Thank you for using the slides!

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